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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/075,529	02/13/2002	Vimal V. Shah	2000-IP-002848/1391-2490	8955

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EXAMINER	
EDWARDS JR, TIMOTHY	

ART UNIT	PAPER NUMBER
2635	

DATE MAILED: 07/26/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/075,529	SHAH ET AL.	
	Examiner	Art Unit	
	Timothy Edwards, Jr.	2635	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *13 February 2001*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-81* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *37-59* is/are allowed.

6)☒ Claim(s) *1,3,4,7-9,12-36 and 60-80* is/are rejected.

7)☒ Claim(s) *2,5,6,10,11 and 81* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *13 February 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

(b) The invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1,4,8,9,12,16 are rejected under 35 U.S.C. 102(b) as being anticipated by Skinner [US 6,144,316].

Considering claim 1, Skinner discloses a dual means of transmitting data comprising, a) a first telemetry and second transmitter coupled to the drill string to transmit a first and second data stream through a first and second communication channel (see col 4, lines 54-57 and fig 1, items 44 and 47); b) the first and second data steams are each independently interpretable without references to data of the other communication channel (see col 10, lines 52-61).

Considering claim 4, Skinner discloses the limitation of this claim in col 7, lines 6-14.

Considering claim 8, Skinner discloses the limitation of this claim in col 4, lines 59-67 and col 6, lines 15-17.

Considering claim 9, Skinner discloses the limitation of this claim in col 4, lines 59-67.

Considering claim 12, the limitations of this claim are interpreted and rejected as stated in claim 1.

Considering claim 16, Skinner discloses the limitation of this claim in col 4, lines 63-65.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 3,15,17 rejected under 35 U.S.C. 103(a) as being unpatentable over Skinner.

Considering claim 3, Skinner does not specifically recite the first and second transmitter transmits their data simultaneously. However, Skinner suggests a method of a first and second transmitter repeater transmit their data simultaneously (see col 7, lines 6-14 and lines 31-44). Lessi teaches in col 2, lines 25-30 a dual down-hole communication scheme transmitting their data simultaneously. Therefore, it would have been obvious to one of ordinary skill in the art to modify the dual communication system of Skinner to transmit their data simultaneously as taught by Lessi because both systems are concern with the transmitting down-hole data using dual communication systems. Skinner expresses the desire to transmit down-hole data using a dual communication system simultaneously.

Considering claim 15, Skinner discloses in col 6, lines 15-17 the acoustic signal of his system maybe transmitter through the fluid around the drill string. The use of a mud siren is an alterative device to produce signals, which use drilling mud as a communication channel. This device is an obvious substitute to send acoustic mud pulses. Skinner discloses the use of an acoustic telemetry device.

Considering claim 17, Skinner discloses in col 4, lines 63-65 the use of a piezoelectric stack to communicate signals along the drill string; the use of a magneto-strictive element is an alterative device to produce signals, which use drill string as communication channel.

Claims 7, 13,14,18-36,60-80 are rejected under 35 U.S.C. 103(a) as being unpatentable over Skinner as applied to claim 1 above, and further in view of Lessi et al [US 4,945,761] (submitted IDS).

Considering claims 7, Skinner discloses a first and second telemetry transmitter, one transmitter for communicating acoustic data along the drill string and an electromagnetic transmitter. Skinner discloses in col 2, lines 6-10 and col 6, lines 12-25 the transmission of acoustic signal through the fluid in the annulus around the drill string. One of ordinary skill in the art would readily recognize the use of a mud-based acoustic telemetry device in the environment of a well bore system. Lessi teaches the use of a mud-based telemetry device in a dual communication system as an alternative to an

electromagnetic transmitting device. Therefore, it would have been obvious to one of ordinary skill in the art to use a mud-based telemetry device as taught by Lessi in the dual communication system of Skinner because Skinner expresses the desire to communicate acoustic signals in the fluid around the drill string and the use of a mud-based telemetry device to transmit acoustic pressure pulses is well known in the art.

Considering claims 13,14 the limitations of these claims are addressed as stated in claim 7.

Considering claims 18, the limitations of this claim are addressed as stated in claim 7. Skinner discloses a first and second telemetry transmitter, one transmitter for communicating acoustic data along the drill string and an electromagnetic transmitter. Both of these transmitters can be use during drilling operation or when active drilling is not occurring. Therefore, it would have been obvious to one of ordinary skill in the art to modify the acoustic transmitting means of the to transmit mud pulse because Skinner discloses the desire to transmit acoustic data.

Considering claims 19,26 Skinner does not specifically recite the use of his acoustic transmitting system only when active drilling is occurring. However, one of ordinary skill in the art would readily recognize the use of drilling mud as a communication media would require the drilling mud to be circulating in a drilling operation because the drilling mud is the means by which the acoustic signal is carried to its destination. Therefore, it

would have been obvious to one of ordinary skill in the art the Skinner system functionally addresses this limitation because Skinner discloses acoustic signal maybe transmitted through drilling fluid (see col 6, lines 25-30).

Considering claims 20,21 Skinner does not specifically recite the use of his acoustic transmitting system only when active drilling is not occurring or when no mud is flowing. However, one of ordinary skill in the art would readily recognize the use of drilling string, as a communication media would not require any activity but the use of the drill string. Therefore, it would have been obvious to one of ordinary skill in the art the Skinner system functionally addresses this limitation because Skinner discloses the transmission of an acoustic signal using the drill string as a communication media (see col 4, lines 63-65).

Considering claims 22,29 Skinner discloses the limitation of this claim in col 7, lines 6-14.

Considering claim 23, the limitations of this claim are interpreted and rejected as stated in claims 21 and 22.

Considering claim 24, the limitations of this claim are interpreted and rejected as stated in claims 19 and 20.

Considering claim 25, the limitations of this claim are interpreted and rejected as stated in claim 18.

Considering claims 27,28 Skinner does not specifically recite the use of his electromagnetic transmitting system only when active drilling is not occurring or when no mud is flowing. However, one of ordinary skill in the art would readily recognize the use of surrounding earth in a well-bore as a communication media would not require any activity but the use of the earth. Therefore, it would have been obvious to one of ordinary skill in the art the Skinner system functionally addresses this limitation because Skinner discloses the transmission of an electromagnetic signal using the earth as a communication media (see col 4, lines 57-61).

Considering claim 30, the limitations of this claim are interpreted and rejected as stated in claims 26 and 28.

Considering claim 31, the limitations of this claim are interpreted and rejected as stated in claims 26 and 27.

Considering claim 32, the limitations of this claim are interpreted and rejected as stated in claims 1 and 20.

Considering claim 33, Skinner does not specifically recite the use of his electromagnetic transmitting system only when active drilling is occurring. However, one of ordinary skill in the art would readily recognize the use of surrounding earth in a well-bore as a communication media would not require any activity but the use of the earth. However, Lessi teaches (see col 2, lines 39-42) the transmission of electromagnetic waves during drill operation. Therefore, it would have been obvious to one of ordinary skill in the art the Skinner system functionally addresses this limitation because Skinner discloses the transmission of an electromagnetic signal using the earth as a communication media (see col 4, lines 57-61).

Considering claim 34, the limitations of this claim are interpreted and rejected as stated in claim 20.

Considering claim 35, the limitations of this claim are interpreted and rejected as stated in claim 22.

Considering claim 36, the limitations of this claim are interpreted and rejected as stated in claims 33 and 20.

Considering claim 60 the limitations of this claim are addressed as stated in claim 1, except prioritizing the data from each of the telemetry transmitters. One of ordinary skill in the art would readily recognize the operation being performed in a drill operation

would dictate the type of data, which would be of interest at any given time. During drilling information such as bit weight, torque, wear and bearing conditions in the vicinity of the drill bit would be vital information. At other times temperature, pressure, environmental and formation information maybe desired information from sensors within a well bore. Skinner discloses the transmission of this type sensor data (see col 4, lines 33-65). During different operation certain data would have priority over other data to ensure the down-hole drilling operation is being completed without incident or an operator maybe pre-warned before an incident occurs. Lessi teaches in col 3, lines 54-65 the use of a dual down-hole communication system, which selects certain data to be transmitted by one or the other communication, means. Lessi also, teaches in col 4, lines 28-46 during drilling operations the transmission of data from a limited number of probes. Lessi teaches detection and transmission of new or modification of geological formation data is of particular interest. Therefore, it would have been obvious to one of ordinary skill in the art to selectively transmit down-hole data using one and then the other communication means in the Skinner system as taught by Lessi because both systems is concern with the use of dual down-hole communication means and the transmission of sensor data. And Lessi teaches it is well known in the art to transmit selective sensor information in a down-hole telemetry system having dual communication means.

Considering claim 61 the limitation of this claim is addressed as stated in claim 7.

Considering claims 62,67-80 the limitations of these claims are addressed as stated in claim 60.

Considering claim 63 the limitation of this claim is addressed as stated in claim 7.

Considering claim 64 the limitation of this claim is addressed as stated in claim 15.

Considering claim 65 the limitation of this claim is addressed as stated in claim 16.

Considering claim 66 the limitation of this claim is addressed as stated in claim 17.

Allowable Subject Matter

Claims 2,5,6,10,11,81 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 37-59 are allowed.

1. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure is Dailey et al '925 discloses a down-hole communication system having dual communication means.

2. Any inquiry concerning this communication should be directed to Examiner Timothy Edwards at telephone number (703) 305-4896. The examiner can normally be reached on Monday-Thursday, 8:30 a.m.-4:00 p.m. The examiner cannot be reached on Fridays.

If attempt to reach the examinee by telephone are unsuccessful, the examiner's supervisor, Michael Horabik, can be reached on (703) 305-4704.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 305-4700, Mon-Fri., 8:30 a.m.-5:00 p.m.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

or fax to:

(703), 872-9314 (for formal communications intended for entry)

Or:

(for informal or draft communications, please label "PROPOSED" or "DRAFT")

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington. VA, Sixth Floor (Receptionist).

Timothy Edwards, Jr.
Primary Examiner
July 22, 2004